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# Inertial deposition of suspended particles in a flow around a porous cylinder

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## Abstract

The results of studying a dispersed airflow around a single porous cylinder are presented. The flow field of carrying medium outside the cylinder is described within the framework of the Navier-Stokes equations for incompressible gas; inside the porous cylinder the Darcy-Brinkman extended equations for averaged velocity are used. The numerical solution of the medium equations is achieved in the FLUENT package. In the found field of carrying medium velocities the suspended particle trajectories are calculated. Also given are the dependences of the particle inertial deposition effectiveness on the Stokes number at various values of the Darcy number. © 2012 Allerton Press, Inc.

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## Keywords

Darcy-Brinkman equations, deposition effectiveness, permeable cylinder, suspended particles